Effects of Stratification Periods on Seed Germination of 'Highlander' Eastern Gamagrass

[1]Janet Grabowski, [2]Joel Douglas, [3]Brian Baldwin.

Eastern gamagrass [*Tripsacum dactyloides* (L.) L.] is a native grass that provides is capable of producing a high quality, palatable forage with proper management; however, seed dormancy is a major hindrance to establishing this grass from seed. A major factor cited for this dormancy is mechanical restriction to emergence caused by the hard fruitcase surrounding the caryopsis. The standard recommendation is to stratify eastern gamagrass seed at 5-10°C for 6 to 8 wk prior to planting to soften these tissues; however, responses to stratification have been shown to be quite variable between genotypes. 'Highlander' is a cultivar developed for use as livestock forage and for soil conservation in the southeastern United States. The first objective of this study was to determine the response of Highlander seed to biweekly stratification periods ranging from 0 to 10 wk.

One-hundred seed of the 2001-2003 production year were planted in flats of commercial potting soil and placed in a greenhouse with germination counts performed every 7 d for 35 or 36 d. Germination ranged from 30.5 to 33.6% for the seed lots tested. Germination was highest for the 8-wk stratification period at 41%, but there was no significant difference between the 6-, 8-, and 10-wk treatments ($P < 0.05$). Because seed growers may not be able to market all the seed treated with wet stratification within a given year, the second objective of this study was to determine the effect of long term stratification periods ranging from 0 to 12 mo on germination. Flats were placed in a controlled environment chamber set at 20/30°C for 14 hr/10 hr with light. Germination declined with increasing length of stratification period, but the decrease in germination was not significant ($P < 0.05$), indicating that Highlander seed have a high tolerance to storage under these conditions. Results from this study suggest that Highlander seed be stratified for 6 to 8 wks and stored for no longer than 6 mo under these conditions.

[1]USDA-Natural Resources Conservation Service, Brooksville Plant Materials Center;
[2] USDA-Natural Resources Conservation Service, Central National Technology Support Center, Fort Worth, Texas;
[3]Mississippi State University